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(74) Agent: KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).

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(71) Applicant (for all designated States except US): ALMA MEDIA OYJ [FI/FI]; Eteläesplanadi 14, FIN-00130 Helsinki (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HEIMO, Leena [FI/FI]; Leankatu 7 F 19, FIN-00240 Helsinki (FI). EEROLA, Tuomas [FI/FI]; Raappavuorenrinne 1 D 58, FIN-01620 Vantaa (FI). HÄRKÖNEN, Jorma [FI/FI]; Strömsintie 25 B, FIN-00930 Helsinki (FI).

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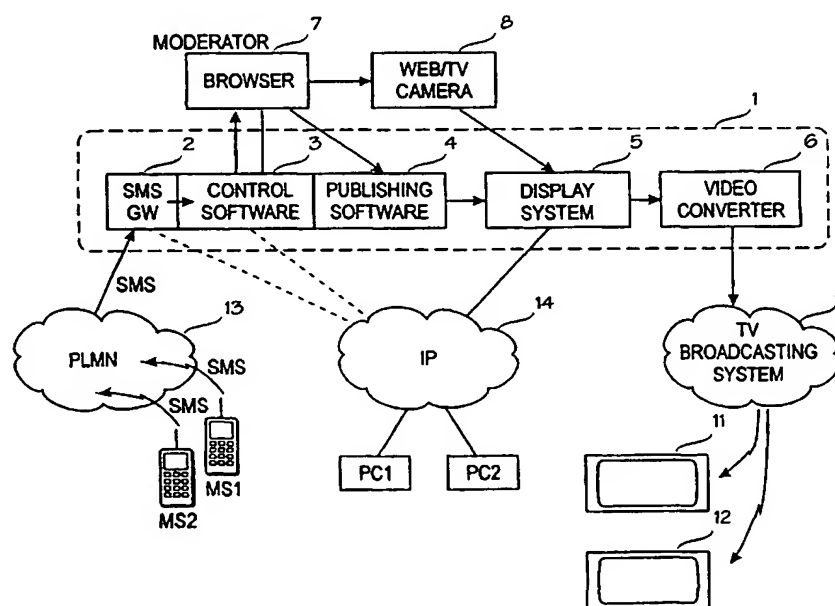
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(54) Title: METHOD AND SYSTEM FOR PROVIDING INTERACTIVE TELEVISION PROGRAMME



(57) Abstract: The invention relates to a method and a system for producing an interactive television programme. Electronic messages (SMS) are transmitted from viewers (MS1, MS2) to a server (1) by means of a communications service of a public telecommunication network (13, 14). The server (1) automatically converts the messages into programme contents wherein the messages are arranged to be displayed on a television screen in a desired order and format. Next, the programme contents are broadcast to subscriber stations (11, 12) through a television broadcasting system (9).

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METHOD AND SYSTEM FOR PROVIDING INTERACTIVE TELEVISION PROGRAMME

FIELD OF THE INVENTION

[0001] The present invention relates to television systems.

5 BACKGROUND OF THE INVENTION

[0002] A vast majority of television broadcasts consists of programmes that are broadcast to all subscribers in the coverage area of a certain terrestrial television network or a television satellite. Typical programmes of this kind include films, television series, news and sports broadcasts, etc. Most
10 of these programmes are produced and recorded in advance while some few are direct (real-time) broadcasts.

[0003] According to a general trend, people are more and more attracted by the idea of becoming more actively involved in discussions taking place on different forums. In the conventional telecommunication networks, this
15 has resulted in new services enabling customers to participate in different discussion or chat groups by means of their subscriber stations. In a conventional telephone network, such groups are implemented as a group call, in which all subscribers that have called a predetermined telephone number are connected to the same speech call. On the Internet, subscribers, using Internet browsers,
20 are able to converse on chat pages created on certain Internet servers. In mobile networks, subscribers, in addition to the chat groups mentioned above, can be members in short message chat groups, wherein a short message sent by one member of a group is delivered to all other members of the chat room.

[0004] The chat functionality and interactivity have also been introduced to television programmes. In direct broadcasts, viewers may be provided with the opportunity to make a speech call or send short messages or e-mail to the production site of a programme in order to ask questions, make comments or participate in a contest. From among the received communication, producers of the programme select suitable items to be used in the programme. In this way, the viewers are to some extent able to affect the course,
30 plot and contents of the television programme.

[0005] The introduction of digital television or Digital Video Broadcasting (DVB) increases television broadcasting capacity considerably and enables supplementary services, such as data service in connection with one
35 or more conventional video programme services. New programme formats are

needed to occupy the increased programme capacity available, and these formats should also be inexpensive to produce.

DISCLOSURE OF THE INVENTION

5 **[0006]** An object of the present invention is to provide a new method and system for providing an interactive television programme.

[0007] This is achieved by a method as claimed in claim 1, and a system as claimed in claim 7.

10 **[0008]** In the invention, viewers send electronic messages to a programme production system by means of a communications service of a public telecommunication network. The communications service can be e.g. a short message service of a mobile network, and the messages e.g. short messages. The production system comprises means for receiving such electronic messages and for automatically converting the contents of the electronic messages into programme contents wherein the messages are arranged to be displayed
15 on a television screen in a desired order and format. In addition to the contents of the messages, the programme contents to be broadcast, i.e. the picture to be displayed on the television screen, preferably also comprises further information. The final programme contents are broadcast to the subscriber stations via a television broadcasting system, the subscriber stations then displaying
20 the programme on the television screen. This enables a discussion or chat group to be created wherein the messages transmitted to the production system will be forwarded to all viewers within the area of the entire television system or within an appropriate restricted local area. It is inexpensive to produce such a programme since the messages sent by the viewers automatically constitute most of the programme contents. If desired, the viewers can be charged
25 for the use of the discussion group service in connection with billing for the communications service of the public telecommunication network, e.g. applying a higher tariff on transmitted messages. Although the invention can be implemented in a completely automated manner, in a preferred embodiment of the invention the production system is further equipped with means for enabling a
30 programme moderator to monitor the programme contents and, if necessary, to interfere therewith before the programme contents are broadcast via the television broadcasting system. The moderator may e.g. censor the programme contents by rejecting some of the received messages. In order to enhance the automatic characteristic of the invention, in an embodiment of the
35

invention these control means comprise a web page or a web site being viewed and processed by the moderator using a web browser, preferably as a remote control function over a telecommunication connection. This solution enables the moderator to remote-control the production system by means of a conventional computer and an Internet browser from any location completely independent of the physical location of the production system.

[0009] The programme contents can be transmitted as video information in the manner of a conventional television channel or as a data service of a digital television system.

[0010] In an embodiment of the invention, the programme production system means for receiving messages are arranged to deliver messages through telecommunication connections also directly between the viewers or between the moderator and the viewers. A viewer can thus flexibly start a private conversation with the sender of a message displayed on the television screen. Therefore, in an embodiment of the invention, the means for receiving messages are arranged to store information on the sender of each received message and to assign each message a code which is added to the broadcast programme contents and displayed on a television screen in connection with the particular message. When a viewer wishes to send a personal message to the sender of a particular message, he or she adds the respective code to his or her reply message and sends the message to the production system. When the means for receiving messages receive the reply message and detect this code, the means retrieve the stored contact data on the code and forward the message on the basis of this contact data. The messages are preferably delivered anonymously in such a fashion that the production system will not reveal the identity of the parties to each other.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] In the following, the invention will be described in closer detail and with reference to the accompanying drawings, in which

[0012] Figure 1 illustrates an overall system enabling an interactive television programme to be produced according to the invention, and

[0013] Figure 2 schematically illustrates programme contents displayed on a television screen.

DETAILED DESCRIPTION OF THE INVENTION

[0014] The present invention can be applied on any television

channel and in any country having a suitable communications service of a public telecommunication network for sending electronic messages from television viewers to a television programme production system. In the preferred embodiments of the invention to be described in the following, such a communications service is a short message service of a digital Public Land Mobile Network (PLMN) but the transmission of messages can also be based on another communications service or communications mechanism, such as e-mail technology or a World Wide Web (WWW) site (web site) created on the programme production system server, the television viewers being able to write messages on such a site by means of a normal web browser. A message typically comprises text but it may also have other kind of contents, such as image and graphics, or different combinations thereof. A television broadcasting system refers to different terrestrial television networks, satellite television systems, cable television systems, etc.

15 **[0015]** As far as the invention is concerned, a change of the communications system employed only causes the message receiving part, such as an SMS gateway 2 in Figure 1, to change; the message receiving part should be built according to each communication method employed.

20 **[0016]** Referring to Figure 1, the production system of an interactive television program comprises a server 1 comprising a short message gateway 2, SMS GW2 for receiving short messages. The SMS GW2 is connected to a Public Land Mobile Network (PLMN) 13, which is e.g. a Global System for Mobile Communication (GSM) network. This connection is implemented to enable standard SMS messages to be exchanged between the SMS gateway 2 and mobile stations MS1 and MS2, using a short message service of the PLMN network. The connection may be e.g. one wherein the SMS gateway 2 corresponds to a short message centre MSC connected to the PLMN network 13. The connection may also utilize the short message centres SMSC already existing in the PLMN network 13. In all cases, a certain telephone number or address is allocated to the SMS gateway 2, the short messages addressed to this number or address being routed to the SMS gateway 2 via the PLMN network 13.

35 **[0017]** The SMS gateway deassembles a received short message and feeds the contents of the short message to control software 3. In addition, the SMS gateway 2 generates an identification code for the short message, which, together with the telephone number or address of the sender of the

short message, is stored in a database. The identification code and the contents of the short message, i.e. the actual message, are supplied to the control software 3. Using the control software 3, the programme moderator is able to monitor the received messages and, if necessary, to discard some of them.

5 Such censorship may be necessary since the producer of the program is responsible for the program not to deliver e.g. criminal or obscene messages. In addition, the moderator, examining the messages, is able to ensure that the messages relate to a certain topic being discussed at a given moment. The messages passed by the control software thus constitute the contents of publishing software 4. The publishing software may be any suitable software for
10 creating an electronic document or programme material. The publishing software can be used for arranging and formatting the messages in such a fashion that they are suitable to be displayed in the final picture. In addition to messages, the publishing software can be used for formatting other text and
15 graphic information that can be inserted to be shown in the same picture with the messages.

[0018] In the embodiment shown in Figure 1, the server 1 provides WWW (web) pages operating as user interfaces to the control software 3 and the publishing software 4. The moderator (the presenter of the programme or
20 any other person monitoring the contents) may access these web pages using a conventional web browser (e.g. Microsoft Explorer or Netscape Navigator). The moderator may be equipped with a computer (PC), communicator, handheld computer or other such device able to operate over an IP network or IP connection and comprising a browser or the like. From e.g. the control software WWW pages, the moderator, using a browser 7, can read the messages
25 supplied from the SMS gateway 2 and, clicking his or her mouse, remove messages not to be shown while the rest of the messages are considered acceptable by default. The publishing software settings are usually fixed and they do not usually need to be changed while broadcasting. If, however, the moderator wishes to do so, using the browser 7, he or she may access the web-
30 page-based user interface of the publishing software 4. From the publishing software 4, the formatted messages and other possible program material are transferred to a display system 5. The display system 5 formats the received program material into a digital image compatible with a video converter 6. The
35 display system 5 is also able to receive a digital video image from a Web camera or a conventional television camera 8. The digital image produced by the

display system 5 may be e.g. according to a television picture 20 shown in Figure 2. The major part of the television picture 20 is reserved for a text message window 24 successively displaying messages 25, 26, 27 and 28 sent by viewers. In addition, the left side of the television picture 20 comprises a window 21 displaying the logo TV CHAT of the discussion group and the number to which text messages can be sent. A second window 22 displays other information, such as local weather or commercials. A third window 23 displays a video image of the moderator, produced by the Web or television camera 8. The digital image produced by the digital display system 5 is conveyed to the video converter 6, which generates video information suitable for a television broadcasting system 9. This can be e.g. an analogue video signal for the conventional analogue television broadcasting systems. In the case of the digital television broadcasting system (DVB), the video converter 6 may be a digital video encoder, which produces Motion Pictures Experts Group 2 (MPEG2) video encoding. The television broadcasting system 9 broadcasts the produced analogue or digital video information to television receivers 11 and 12. The receivers 11 and 12 may be receivers in a conventional analogue television system, digital television receivers in a digital television system or combinations of separate terminal equipment (set top box) suitable for receiving digital television broadcasts and a conventional television receiver. In all cases, a television picture (e.g. of the type shown in Figure 2) is produced on the screen of the television receivers 11 and 12 to display and scroll the messages sent by the viewers.

[0019] The DVB systems are also capable of delivering various data services to customers. For instance, the European Telecommunication Standards Institute (ETSI) has specified the use of the DVB system for broadcasting different data to customers, in addition to a normal television channel. In an embodiment of the invention, the digital image information produced by the display system 5 is conveyed to the data service of the DVB system and broadcast as a separate data flow to the customers. The customers' digital television receivers or set top boxes receive the image data flow and, using a display adapter and/or a video converter, convert it into a video, text or graphic image to be displayed by a television receiver. The interactive television programme of the invention can thus be broadcast as a supplementary service of a normal television channel, wherein the viewer is able to activate the receiver to display the supplementary service, if desired.

[0020] Similarly, the invention may also be implemented as a teletext channel or as a superteletext channel of a digital television to be broadcast in connection with a conventional television channel (within blanking periods of a video signal in the conventional analogue television transmission, and as a dedicated service in digital television transmission). Hence, as used
5 herein, a television programme also refers to a teletext programme or a programme implemented as a data service of a television system.

[0021] In a preferred embodiment of the invention, the SMS gateway 2 delivers short messages SMS also directly between mobile stations MS
10 or between the mobile stations MS and the moderator. Therefore, the identification code assigned by the SMS gateway 2 to each message can be transmitted in connection with text messages and displayed on the television screen, as illustrated in Figure 2. In Figure 2, the messages 25, 26, 27 and 28 are provided with corresponding identification codes 212, 213, 214 and 215.
15 When a viewer wishes to send a private short message e.g. to the sender of the message 27, the viewer writes e.g. a delivery request *214* at the beginning of the message and sends the short message to the SMS gateway 2. The SMS gateway 2 receives the short message and detects the code *214* at the beginning of the short message. The SMS gateway 2 interprets this as a command to deliver the contents of the short message to the sender of the mes-
20 sage having an identification code 214. The SMS gateway 2 retrieves an address corresponding to the code 214 from a database and sends a short message containing the contents of the received short message to this address. The SMS gateway 2 may also assign the received short message containing
25 the delivery request *214* a new identification code and, together with the sender information, store this code in the database. The SMS gateway 2 also inserts the assigned identification code in the short message to be forwarded. If the other party still wishes to send a reply to the short message, he or she may send a short message provided with this identification code to the SMS
30 gateway 2 in a manner described above. The SMS gateway 2 then delivers the reply message to the first party as described above. An anonymous discussion is thus enabled between the two parties without revealing the identity of either party, unless the parties themselves wish to reveal their identities in the short messages. It is to be noted that the above description only describes one ex-
35 ample of the way in which a mechanism for delivering short messages can be implemented.

[0022] Figure 1 further illustrates a situation wherein computers PC1 and PC2 connected to an Internet Protocol (IP) network 14 are able to communicate with the display system 5 in order to retrieve and display programme contents on a computer display. The computers may also communicate with the control software WWW pages if the user operates as a moderator. The computers PC1 and PC2 may also be connected to the gateway 2 of the server 1, particularly if the gateway 2 provides a WWW site capable of receiving messages.

[0023] The description of the preferred embodiments of the invention is only intended to illustrate the invention. The implementations of the invention may, however, vary within the spirit and scope of the attached claims.

CLAIMS

1. A method for producing an interactive television programme,
characterized in that the method comprises the steps of
sending electronic messages (SMS) from television viewers (MS1,
5 MS2) to a server (1) by means of a communications service of a public tele-
communication network (13, 14),

converting automatically, at the server (1), the electronic messages
into programme contents wherein the messages are arranged to be displayed
on a television screen in a desired order and in a desired format,

10 broadcasting the programme contents to subscriber stations (11,
12) through a television broadcasting system (9).

2. A method as claimed in claim 1, **characterized** in that
a viewer generates a message in a mobile station (MS1, MS2) and
sends the message as a short message (SMS) of a mobile network (13) to the
15 server (1),

the server (1) automatically converts the contents of the short mes-
sage into part of the programme contents.

3. A method as claimed in claim 1 or 2, **characterized** in that
the programme contents are controlled by a user interface (3) enabling a pro-
gramme moderator (7) to monitor the programme contents and, if necessary,
20 to interfere therewith before the programme contents are broadcast through
the television broadcasting system (9).

4. A method as claimed in claim 3, **characterized** in that the
user interface is a web site being processed by the moderator using a web
25 browser (7), preferably as a remote control function over a telecommunication
connection.

5. A method as claimed in any one of the preceding claims,
characterized by adding to the programme contents also information
(21, 22, 23) other than that comprising messages (24) sent by the viewers.

30 6. A method as claimed in any one of the preceding claims,
characterized in that the server (1) delivers messages via telecommu-
nication connections (PLMN) also directly between the viewers (MS1, MS2) or
between the moderator and the viewers when a message is provided with a
code identifying the receiver.

7. A system for producing programme contents for an interactive television programme, **characterized** in that the system comprises means (2) for receiving messages (SMS) from television viewers (MS1, MS2, PC1, PC2) through a public telecommunication network (13, 14),
5 means (2, 3, 4) for automatically converting the messages into programme contents wherein the messages (25 to 28) are arranged to be displayed on a television screen (20) in a desired order and in a desired format,
means (5, 6) for transferring the programme contents to a television broadcasting system (9) in a format suitable for the particular broadcasting system to be broadcast to subscriber stations (11, 12).

8. A system as claimed in claim 7, **characterized** in that said messages are short messages (SMS) sent from mobile stations (MS1, MS2) in a mobile communication system, and that said conversion means (2, 3, 4) automatically convert the contents of the received short messages into programme contents to be broadcast.

9. A system as claimed in claim 7 or 8, **characterized** in that the system comprises means (3) for enabling a programme moderator to control said automatic conversion means and, if necessary, to interfere with the programme contents before the programme contents are broadcast through a television broadcasting system (9).

10. A system as claimed in claim 9, **characterized** in that said control means (3) comprise a web page or a web site being viewed and processed by the moderator using a web browser (7), preferably as a remote control function over a telecommunication connection.

11. A system as claimed in any one of claims 7 to 10, **characterized** in that the programme contents also comprise information (21, 22, 23) other than that comprising messages (24) sent by the viewers.

12. A system as claimed in any one of claims 7 to 11, **characterized** in that said means (2) for receiving messages are arranged to deliver the messages via telecommunication connections also directly between the viewers or between the moderator and the viewers.

13. A system as claimed in claim 12, **characterized** in that said means (2) for receiving messages are arranged to store information on the sender of each received message and to assign each message a code which is added to the programme contents to be broadcast and displayed on a television screen in connection with the particular message, and that said

means (2) for receiving messages are arranged to deliver a received message provided with said code anonymously via telecommunication connections directly to the sender of the message indicated by the code.

Fig. 1

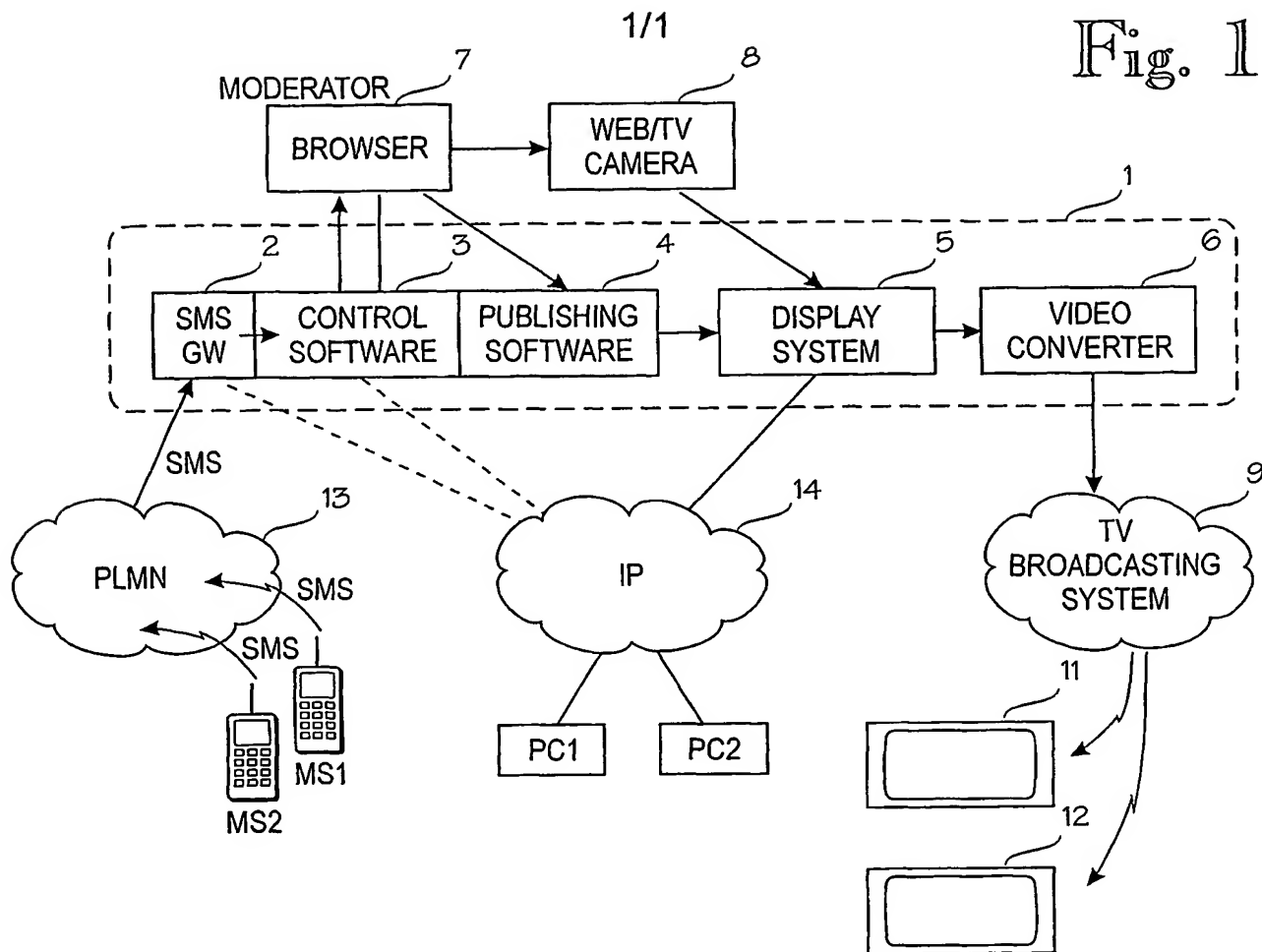
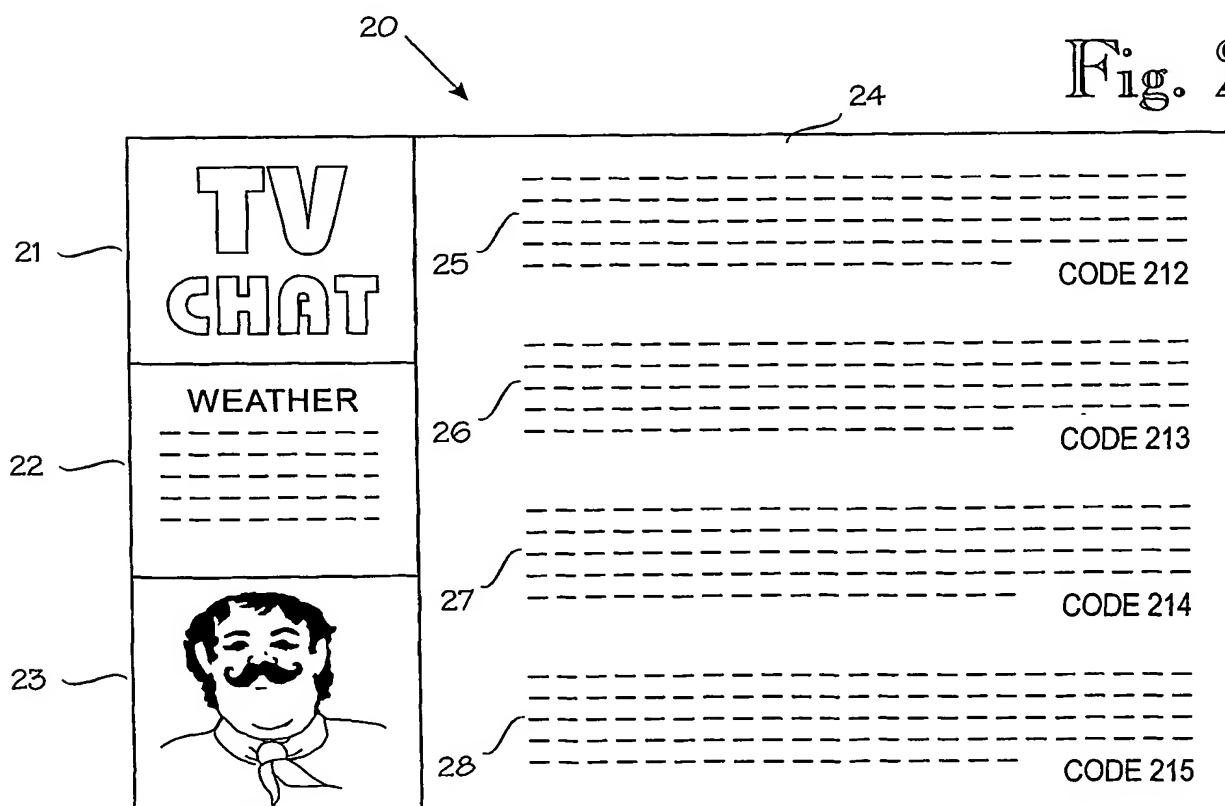


Fig. 2



INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI/00872

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04N 7/088

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 0027115 A1 (DROZDY, GY6Z6 ET AL), 11 May 2000 (11.05.00), page 2, line 8 - line 17; page 5, line 6 - line 21, abstract --	1-13
X	WO 9963729 A2 (NET 2 INTERAKTIV AS), 9 December 1999 (09.12.99), figure 1, abstract --	1
P,X	WO 0101684 A1 (SIEMENS AKTIENGESELLSCHAFT), 4 January 2001 (04.01.01), page 4, line 6 - page 6, line 34 -----	1-13

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Facsimile No. +46 8 666 02 86

Authorized officer

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	0027115	A1	11/05/00	AU	1289500 A	22/05/00
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